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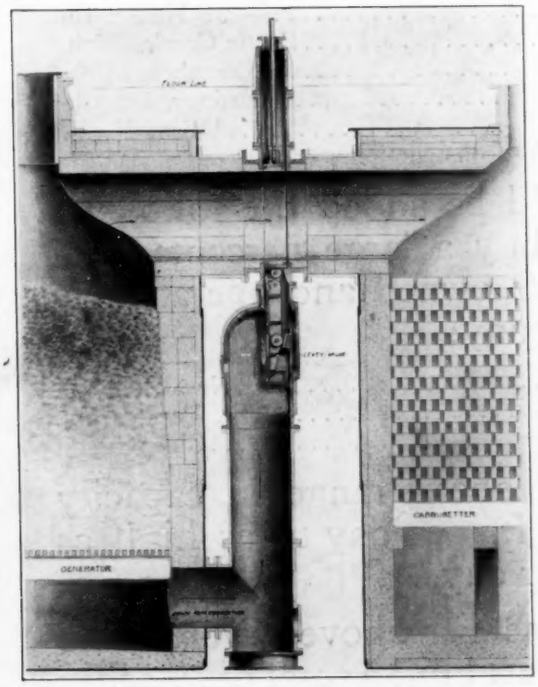


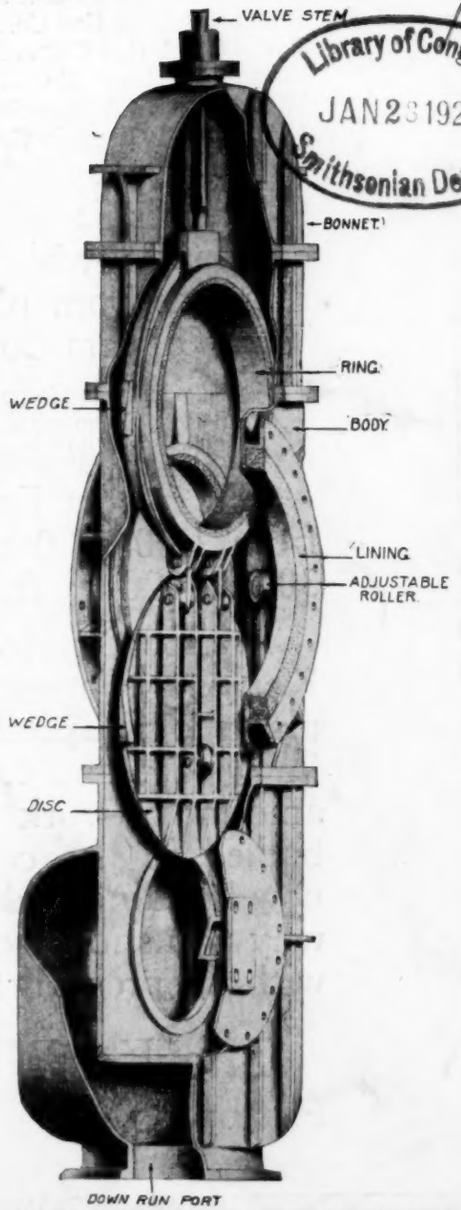
LEVEY TYPE OF HOT VALVE FOR CARBURETTED WATER GAS SETS

Built in all sizes either hand or hydraulic operating mechanism.
Performs in one valve and with one disc, the functions taken care of by the old style of Hot Valves, which made necessary two (2) valves per machine.
Adjustable wedges make it possible to keep the valve tight at all times and insure proper operation of sets.

The BARTLETT HAYWARD CO.

Engineers and Founders

BALTIMORE **NEW YORK**



VALVE DISC SHOWN AT HALF STROKE

Experience

Below is given a list of the gas companies which have built or are building Koppers Coal Gas Plants:

Laclede Gas Light Co.	St. Louis, Mo.
Providence Gas Company	Providence, R. I.
Public Service Gas Co.	Camden, N. J.
Indiana Coke & Gas Co.	Terre Haute, Ind.
Battle Creek Gas Co.	Battle Creek, Mich.*
Consumers Power Co.	Zilwaukee, Mich.*
Winnipeg Gas & Electric Co.	Winnipeg, Canada*
Utica Gas & Electric Co.	Utica, N. Y.*

*Under construction.

To this list should be added the following companies which buy a large percentage of their gas from plants owned and operated by The Koppers Company:

Public Service Gas Co.	Newark, N. J.
St. Paul Gas Company	St. Paul, Minn.
Peoples Gas Light & Coke Co.	Chicago, Ill.

The plants listed above range in capacity from 1,000,000 cu. ft. per day to as high as 30,000,000 cu. ft. per day.

In addition to the list above given, The Koppers Company has built a total of 39 other plants for the production of coke and gas. The knowledge and experience gained in this vast amount of work is at your service. It is embodied in the coal gas plants which we are now building and is a most convincing reason why you should consult us before going ahead with any program for increasing your gas output.

The KOPPERS COMPANY

Pittsburgh **Chicago**

WOODALL-DUCKHAM VERTICAL RETORTS

FIRST in 1903 **FOREMOST in 1923**

150 PLANTS ERECTED or on ORDER

Total Capacity, 17,460 Tons Per Day

ORDERS RECEIVED SINCE JANUARY 1st, 1919

	Capacity Tons per day
*Dundee, Scotland (2nd Installation)	110
*Brechin, Scotland	21
*Newton-in-Makerfield, England (Extension)	18
*Dunfermline, Scotland	110
*Lochgelly, Scotland	21
*Ripon, England	40
*Walsall, England	100
*Kilsyth, Scotland	24
*Inverness, Scotland	40
*Bergen, Norway (2nd Installation)	57
*Stockport, England	168
*Glasgow, Scotland	1,356
*Adelaide, Australia	80
*Portsea Island, England (2nd Installation)	140
*Carnoustie, Scotland	21
*Wexford, Ireland	18
*London, G. L. & C. Co. (4th Installation)	200
*Neath, Wales Kensal Green	60
*Bolton, England (2nd Installation)	168
*Workington, England (Extension)	23
*Stourbridge, England	80
*Wolverhampton, England	80
*Troon, Scotland	28
*Trondhjem, Norway (2nd Installation)	38
*Warrington, England	112
*Manchester, England	336
Carried Forward	3,452

	Capacity Tons per day
Brought Forward	3,452
*Newton-in-Makerfield, England	21
*Wallasey, England (2nd Installation)	120
*Lanark, Scotland	21
*Gourock, Scotland	28
*Brighton, Australia	60
*Fremantle, Australia	20
*Christchurch, New Zealand	40
*Wanganui, New Zealand (2nd Installation)	40
Perth, Australia	60
*Birmingham (7th Installation) Nechells	840
*Sheffield, England	336
*Dairen, S. Manchuria	100
*Paisley, Scotland	140
Hinckley, England	60
Dresden, Germany (3rd Installation)	180
Cheltenham, England	120
Market Harborough, England	26
Leatherhead, England	40
The Hague, Holland	168
Liverpool, England	100
Paris, France	420
Geelong, Australia	60
Aberdeen, Scotland (2nd Installation)	192
Innerleithen, Scotland	7
Poole, England (4th Installation)	168
Buffalo, N. Y.	280
TOTAL CAPACITY Tons per day	7,166

***In Operation**

For Particulars apply to

ISBELL-PORTER COMPANY

NEWARK, NEW JERSEY

Gas Engineers and Builders of Gas Works

American Gas Journal

SIXTY FIFTH YEAR

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Contents of This Issue

The Economy of the Back Run Device **67**

Helping the Newsprint to Print Real Gas News **69**

By Calvin Lindley

Industrial Gas Lesson No. 4 ..... **71**

Editorial **73**

House Heating with Gas

A Gas Company Fails

Gas Wrinkles **74**

Catechism of Central Station Gas Engineering, Installment No. 4 **75**

New Residents Good Prospects for Gas Appliances **79**

By Frank V. Faulhaber

What Is Back of It?—By William A. Matlack **81**

News of the Gas Industry **86**

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The Economy of the Back Run Device

Test on Back Run Device, Station "J," Detroit City Gas Company, July 12, 1923

Purpose of the Test

The object of this test was to determine the economies, if any, to be effected by the installation of the Backrun device on a standard Water Gas machine.

Certain increases in capacity and fuel efficiency are claimed by the vendors of the Backrun device, and we wished to substantiate or disprove these claims.

Location of Test

The test was made at Station "J," because at that station it was possible to run one machine constantly, entirely independent of fluctuations in sendout.

Furthermore, Station "J" is equipped with fairly adequate blowers, steam at a high initial pressure and suitable devices for measuring or weighing the air, steam and fuel supplied to the machines and the gas produced. The machines themselves are of a modern type, with large connections; the screening facilities allow a uniform quality of fuel to be supplied to the machines, and uniform conditions favorable to a maximum make of gas can be more readily maintained there than at any other station.

Equipment

The conveyor belt from the track hopper delivers the coke to a revolving disc grizzly with three-quarter inch spacing. The screened coke is delivered to the water gas bin and receives a final screening as it leaves the weigh-larry on a three-quarter inch round hole plate sceen. Both screens were blanked off duing the unscreened retort house coke test.

Weighing Generator Fuel

This was weighed on a 6000-pound capacity weigh-larry traveling on an overhead track and delivering coke directly to the generator.

Air

This was furnished either by an American Blower Company fan having a rated capacity of 20,000 cubic feet per minute at 42 in. static pressure direct connected to a 200 h. p. Westinghouse turbine or by a General Electric Company centrifugal compressor of the same rated capacity direct connected to a 208 h. p. Curtis type turbine. Generator air was measured by Clark Blast Meters having a total range of fom zero to 20,000 cubic feet per minute, or by a Venturi Meter furnished by the U. G. I. Contracting Company. No attempt was made to measure air to the carburetter.

Steam

This was furnished at 140 lbs. to 150 lbs. gauge pressure and measured by orifice meters furnished by the Gas Machinery Company or the U. G. I. Contracting Company. The gauges read directly in pounds of steam per minute.

Oil, Gas, Ash and Clinker

The oil used was Mid-continent oil. It was measured by standard oil meters furnished by the makers of the machines.

Gas was measured by Thomas meters.

Ash and clinker were weighed on standard platform scales.

Machines

The tests on screened retort house coke, the tests on unscreened retort house coke both with and without the Backrun device, and the test on screened oven coke with the Backrun device were conducted on an 11 ft. Gas Machinery Company machine of standard construction.

The test on screened coke oven coke without the Backrun device was conducted on an 11 ft. cone-top standard U. G. I. Contracting Company machine.

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*The above description of Test forms a part of the 1923 Committee Report on Carbonization and Complete Gasification of Coal.

The Meters Used

The facilities for making measurements have been described.

The oil meters were tested against a calibrated tank before and after the tests and found accurate within the limits of error.

The steam meters were checked before each test and at intervals throughout the tests. All that could be done to these meters was to insure that the gauges on the up and down steam read alike and that the results were therefore comparative.

The Thomas meter had frequently been checked against wet drum meters and found accurate. The balance was checked before, during and after the tests and remained constant.

Weigh Larry

Was checked with standard weights before the beginning of the test and at intervals between tests and any slight errors found were corrected.

Sampling

Samples of Generator Coke were taken from each alternate coking and transferred to a large covered metal can. One sample was taken for each eight-hour shift. Moisture was determined daily for each shift, and a sample ground for complete analysis.

Coke recovered from clinker was weighed, coned and quartered and a sample taken from each cleaning for moisture and combustible determination.

A sample was drawn each hour from the oil line on the generator charging floor and a portion of the combined sample sent to the laboratory for distillation and other tests.

Finished gas samples were taken from the purified gas line at the meter. Each analysis was made on an eight-hour holder sample.

B. T. U. tests were made hourly on a one-hour holder sample.

Blue Gas Samples

Were taken hourly. In the case of the up-run they were taken from the top of the generator. In the case of the down-run they were taken from the down-run connection. In the case of the Backrun they were taken from the Backrun connection between the bottom of the generator and the seal.

They were taken on the third run after coking, throughout the up-run, back-run or down-run. Sometimes samples were taken on both the up and down or Backrun each hour and sometimes they were take on alternate hours.

The following is a short summary of the more important results obtained with and without the Backrun:

Blast gas samples were taken on the third blow after coking at the superheater stack. These were taken hourly.

Temperature

In the case of the test on screened oven coke without Backrun, temperatures at the top and bottom of the superheater were taken with Brown Indicating Pyrometers. In every other test these temperatures

Summary of Results Obtained With and Without Backrun Device Using Unscreened Retort House Coke, Screened Retort House Coke and Screened Oven Coke as Generator Fuel

	Test Using Unscreened Retort House Coke as Generator Fuel		Test Using Screened Retort House Coke as Generator Fuel		Test Using Screened Oven Coke as Generator Fuel	
	Without Backrun	With Backrun	Without Backrun	With Backrun	Without Backrun	With Backrun
Gas:						
Make per 24 hrs. cu. ft	1,882,000	2,276,000	3,016,000	3,500,000	3,701,000	4,319,000
Make per running hour cubic feet	99,121	110,162	158,829	166,726	189,866	203,247
Make per running hour per square foot of grate area—cubic feet	1,558	1,732	2,485	2,621	2,985	3,195
Per cent increase in capacity with Backrun		20.93		16.05		16.67
Coke:						
Dry coke per thousand cubic feet	43.67	33.21	29.81	25.26	27.21	21.81
Dry combustible per thousand cubic feet	36.10	28.44	25.36	22.18	23.89	18.73
Per cent decrease in generator fuel with Backrun		25.35		12.54		21.60
Oil:						
B. T. U. per gallon per cubic foot	79.4	73.3	79.0	77.1	77.5	72.1
Per cent decrease in oil efficiency with Backrun		7.68		2.40		7.0
Total clinkering time, hours	4.82	3.36	4.82	2.98	3.95	2.68

(Continued on page 82)

Helping the Newspaper to Print Real Gas News

Who is the right person on editorial staff to give the utilities a fair deal?

Calvin Lindley

WHEN W. G. Rich of the Providence Gas Company told the delegates at a recent convention at Atlantic City that women visitors to the gas plant show greater interest than the men he was pointing out a tendency that might be studied by the publicity men of the gas companies. Often the young woman reporter on the local newspaper will be the one that can best tell the facts to the public when the gas company has a real news story.

So many of the male reporters have an inclination toward more thrilling stories, crime, the workings of politics and sports, that they do not relish assignments relating to such prosaic things as gas companies. I know that in the mid-western city in which I got my early training it was regarded as an insult to have the "gas company" on your "run." As a matter of fact, it was most persistently passed up by reporters as often as was possible.

Women Reporters Preferable to Male for Writing Gas Stories

Therefore, if there is a capable woman writer on one of the local papers who has a tendency toward writing feature stories, keep her in mind. Perhaps you can arrange for some woman's organization to visit the plant and suggest to the city editor that the woman writer be assigned to the story. If she has any "nose for features," she will want to write something about what the gas company means besides a gas bill.

This is suggested by the manner in which a reporter wrote up the visit of a local civic organization to the gas plant. He was bored, evidently, and he tried to be funny about a trip in a truck. He might have portrayed to the readers of the paper something of what the business man saw. Instead, he lumped together enough statistics about the gas production to make a dozen lines, and followed it with this paragraph:

"All of which they considered very interesting."

A Couple of Hunches

Under the heading of "Managing editors and city editors are always on the lookout for news and feature ideas that can be used locally," the Editor and Publisher gives these hunches:

"Inquiry at several public service corporations regarding methods used in reading meters, how accounts are paid and what receipts are issued, will do much to acquaint the average reader with the methods used in compiling gas, electric and water bills. If treated as news, it will be of great interest. Some firms take cash through the window and stamp the bills receipted. Others issue a receipt. When payment is made by check, some send no receipt, others do. Why?"—L. J. Jellison, Times-Journal, Dubuque, Iowa.

"Statistics in annual reports of public utilities can be brightened up so they do not read at all like statistics. For instance, one writer learned how many long distance telephone calls were made in his city in one year's time and, taking three minutes as an average call, estimated that the people of his city had talked in the aggregate more than 4,000 years in one year."—A. De Bernardi, Jr., Wichita Eagle, Wichita, Kansas.

Following the same line of thought, you might tell the reporter how many three-minute eggs your company could have boiled in a year.

Does Gas Company Publicity Work Cover the Right Newspaper Men?

If your company issues any advertising literature that really tells what it is doing, that could create good-will if it were read thoroughly, do you see that copies get into the hands of the right men on the newspapers? Or do you send one copy to the newspaper and trust that somebody will read it? You never can tell what member of the editorial department will be able to do you some good some time—not "take care" of you when you have some ax to grind, but suddenly write a story that affects the interest of the gas company.

Put the society editor on the mailing list for different kinds of literature? Well, I know one who took it into her head to speak every now and then in her column about smoke prevention and burning less coal. She and her assistants also reported many meetings that had to do with household science. And some of them have homes of their own, you know.

The real estate editor? I recall different stories that pointed out the advisability of lot-purchasers being sure of a gas supply in sub-divisions and the like.

The Columnist Must Be Looked After

The columnist? He may take more flings at the gas company if he is not well acquainted with it. He may run more jibes from his "contribs" until he realizes that he is not playing fair at all times.

The man who handles the "letters from subscribers" or "voice of the people." He almost constantly gets letters of complaint about the gas company. If he publishes one in which the indignant subscriber cites some alleged injustice, that means he will get a flood of others. People begin to read them and are affected. If you can help to educate the man who

handles these letters, by all means do so. He can't print all the letters he receives and he will be, as a rule, glad to keep out any that are based on untrue assumptions.

Subscriber's Letter

For example, a "subscriber" wrote to one middle-west newspaper and told of seeing a meter reader filling out the bills on the street car. This brought a reply from a meter reader, telling how the books containing 250 sheets were given to the readers each morning, adding: "These sheets, besides containing space for the meter readings, have a space for the man's working number and a place for the day and month of the year. The dating and numbering must be done on the reader's time. This is done mostly on our way to and from the route. Some people riding on the cars with us think we are estimating gas charges."

Printing the original letter was poor newspaper judgment. Less proof that utility employees were cheating patrons was required from a letter writer than a city editor would ask from a good reporter. Therefore the man who handles these letters from subscribers is an important figure on the paper and needs education as to utilities.

The copy-desk men, too, need education about gas companies. The copy-desk men write the headlines and many of them still think of the gas company as doing nothing but making huge profits. Within the twelve months there appeared in a big middle-west city the headline:

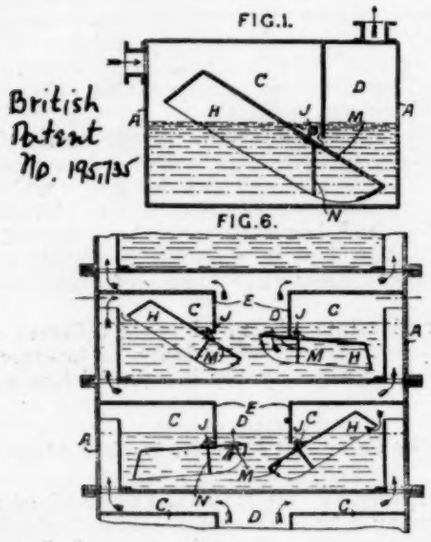
Robbers Leisurely Cut
Gas Company's Profits $568

If a department store had been mentioned in the same way there would have been a howl—a merchant would have suffered just a plain robbery.

Every man and woman in the editorial department of a newspaper may have a chance to handle material concerning the gas company at some time or other and each individual should be exposed to as much educational material as possible. Some of it may take.

GAS WASHER

In a gas washer of the type in which gas is forced into a tank, A, partly filled with liquid, and divided by a partition or partitions, E, descending below the level of the liquid, an oscillating shaft, J, is arranged parallel with and close to each partition, and suspended from each shaft is one or more inverted flat-



bottomed troughs, H, one portion, M, of the trough (on the gas outlet side of the partition) being perforated and the other portion (on the gas inlet side) non-perforated. The perforated part remains continually submerged, and the non-perforated portion traps a quantity of the gas whilst above the liquid level and carries it below the surface. The gas is thus somewhat compressed and escapes through the perforations into the liquid in the adjoining compartment. A series of such devices may be worked together with any desired timing of the oscillating troughs.—British Patent No. 195735.

WATER GAS MANUFACTURE

The apparatus is for producing a constant quantity and quality of combustible gas with a given automatically regulated supply of air, steam, and fuel. Three separate generators are used, each with vertical retort and water-gas generator, and each is fitted with gas, steam and air and tar connections, and also additional gas connections at the base. These connections are connected to center valves operated by a vertical shaft to obtain the desired cycle of operations. Each generator has a vertical double-walled retort superposed on a water-gas generator, which is fed from it. In one generator, water-gas is made by passing steam downwards through it, and the water-gas is passed upwards through the next generator and through the coal descending through the retort, so that the coal is distilled by the heat of the water-gas. The third generator is blown while these operations are carried out, and each unit passes through the various operations in a cycle. The heat of the hot blow gases is recovered by passing them through the jacket surrounding the vertical retort, to assist in distilling the coal in the retort. The blow gases also superheat the steam for the production of the water-gas. Tar may be introduced and gasified simultaneously during the downward steaming of one bed of fuel, and all the operations are carried out automatically by the operation of the valves from a common shaft.—(See British Patent No. 207,258).

INDUSTRIAL GAS LESSONS

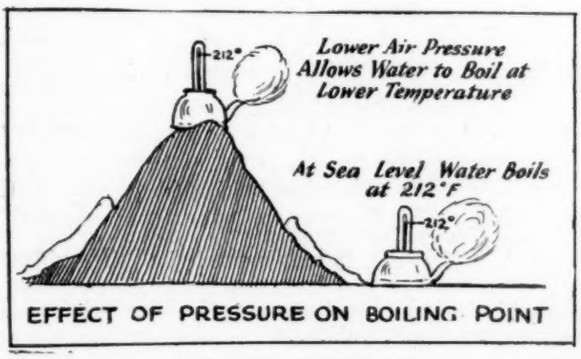
IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 4

The effects of heat (continued)

Boiling Point and Pressure

Before leaving the discussion of the change of liquids into vapors by the application of heat, it must be mentioned that the pressure of the atmosphere has an important effect on the temperature at which boiling takes place. The boiling points of liquids are all measured at atmospheric pressure, but when the pressure decreases the boiling temperature of the liquid correspondingly decreases, and when the pressure increases, the boiling point of the liquid similarly increases. In fact, so constant is the relation between pressure and boiling temperature of water, for example, that the height of a mountain above the sea level can be told by the temperature at which water boils on its summit. For the higher the mountain the less the pressure of the atmosphere at the top and the lower the boiling point of water.



EFFECT OF PRESSURE ON BOILING POINT

Apparent Heat-less Evaporation

The reduction of the boiling point as the pressure decreases explains the evaporation of liquids under a vacuum with the application of little heat as compared with that necessary for effecting vaporization of the same liquid at atmospheric pressure. The evaporation of liquids in the open air with apparently no application or expenditure of heat is nevertheless a vaporization effect which entails the consumption of heat. The heat is furnished both by the liquid and by the air, but the slow rate at which the evaporation takes place makes it appear as if no heat were being consumed. It should always be remembered that it is not possible to effect a change from a liquid to a gaseous state and similarly from a solid to a liquid state without the expenditure of heat, and similarly that the condensation of a vapor or the freezing of a solid is attended by an evolution of heat in the same amount as was expended in accomplishing the original vaporization or melting.

Sublimation of Solids

In this connection it must be mentioned that there are some solids that will go straight from the solid into the gaseous condition on exposure to air. This process is known as sublimation. Various chemicals are made by application of this phenomenon. Ice will sublime, under certain conditions, going directly from the solid to the vapor. Similarly frozen carbon acid gas, the gas that is used to make soda water and soft drinks, will disappear, changing directly into a vapor, on exposure to the air.

Heat and Viscosity

Some liquids flow more readily than others. Some are thin and others are thick. This property of a liquid is known as its viscosity. Perhaps the most important application of the viscosity of liquids is in the lubricating oil industry and in the use of the oil in lubrication of machinery. As the temperature decreases, the oil becomes thicker, and as it increases the oil becomes thinner. It is of considerable importance to know the exact effect of heat on the viscosity of the oil, so that the right oil may be employed for the right purpose. Thus bearing oil, which does not have to stand high temperatures, is of much lower viscosity, hence much thinner, than cylinder oil, which is introduced into the steam cylinder, coming in direct contact with high temperature steam.

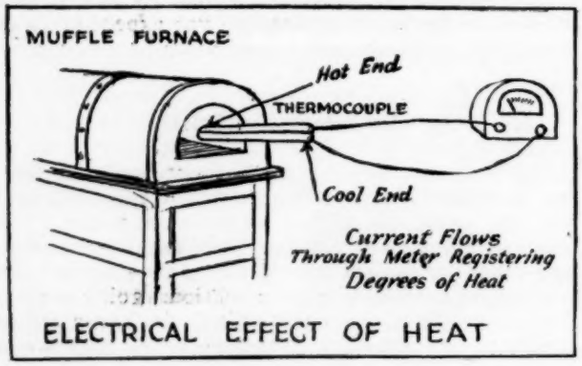
Electric and Magnetic Effects

The electric and magnetic effects of heat are also important and interesting and the gas engineer is concerned with them. The electric effect of heat is used in the measurement of high temperature. When two metals are joined together at two separate points and one end is kept cool while the other end is kept hot, a current is induced to flow through them, in other words, a thermo-electric couple is obtained. The relation between the intensity of the current and

the degree of heat is a constant one and hence the couple can be used to indicate the temperature of a furnace by inserting it into the same and reading the temperature from a calibrated scale on the electric meter which is placed in the circuit.

Miscellaneous Physical Effects

There are other physical effects which are also of importance. Thus, for example, as the temperature rises, certain solids become more soluble in certain liquids. Then, again, a dissolved substance may sometimes be thrown out of solution by increase of the temperature of the substance rather than by its decrease. Then, again, the application of heat generally reduces the capacity of a liquid for absorbing and holding in solution or suspension a gas or vapor. For example, sugar dissolves more readily in hot water than in cold, while common salt dissolves best in water at a moderate temperature, beyond which it becomes less soluble.



ELECTRICAL EFFECT OF HEAT

Chemical Effects

The chemical effects of heat are likewise important to the gas engineer, and in fact that chemical effect, which is known as combustion, is perhaps the most important of all the heat effects as far as the industrial gas engineer is concerned. It is well known that as heat is added to certain substances and as their temperature is thereby raised, they approach a point where they ignite and burn. This point differs for various substances. For paper it is comparatively low, for wood it is still higher, for coal it is much higher than for wood, and so on.

The principal characteristic of combustion is the combination of the combustible, that is, the substance that is burnt, with oxygen resulting in the liberation of heat. There are other reactions—that is, chemical changes in which the original substances are changed into entirely different ones—which absorb heat instead of setting it free. These are not combustions, but are brought about by heat and are also important to the gas engineer, for he meets them in his practical work and is asked to design apparatus and systems in which these chemical changes may be effected by the use of his fuel, gas. Thus, far example, there is the reaction in which limestone is changed into lime, a process which requires a considerable amount of heat. This heat must be obtained from burning a fuel. The manufacture of cement is partly based on this reaction.

PROPOSED PROGRAM FOR TECHNICAL SECTION OF A. G. A.

At a meeting of the sub-committee on purity and chemical requirements of the Gas Standards and Service Committee of the Technical Section, a program looking to an intimate study of the principles underlying gas standards and service, with particular reference to the matter of purity and chemical requirements, was outlined. The preparation of a report to the A. G. A. Committee on Gas Standards and Service embracing any recommendations as to additions, changes or modifications in any rules of regulatory bodies, together with such data or information as may seem essential to the proper understanding of such rules by either the members of the commissions or of the gas companies as to the reasons underlying such recommendations.

It was suggested that a history and bibliography of sulphur contents comprising brief abstracts of the principal development in this subject be compiled, be segregated from the bibliography all data specifi- and that there be segregated from the bigliography all data specifically referring to rules and regulations so that these might be stated separately.

The Committee on Water Gas—carburetted and uncarburetted—during a recent meeting decided that in view of the fact that no work in the field of water gas manufacture has been done by the association for a number of years, it was agreed that the subject would have to be considered rather broadly and that something of an historical nature be included, bringing the report up to date.

GOOD BUSINESS PREDICTED FOR GAS INDUSTRY

Samuel T. Bodine, president of the United Gas Improvement Company of Philadelphia, says:

"Reports from gas and electric companies in cities widely scattered throughout the United States indicate prospects for good business for the first six months of 1924. Based upon this belief, they have already placed their orders for construction and operating supplies for that period. Advices from banking institutions indicate a faith in their ability to provide at reasonable rates funds for business requirements.

"Much oratory is epected during the present session of Congress, with little constructive action, because of the approaching presidential nominating conventions. It is devoutly to be hoped that included in the constructive legislation may be the reduction of taxes recommended by President Coolidge and Secretary Mellon, removing the temptation to invest large fortunes in tax-exempt securities, thus broadening the market for securities issued for the development of facilities to meet the needs of growing business."

As The Journal Views It

HOUSE HEATING WITH GAS

The American Gas Journal published in a recent issue an article on house heating with gas, one of the Fuel of the Future series. The economic phase of the problem was discussed and the apparent satisfactory adaptability of the limiting demand rate structure to this business was described.

The opinions expressed in this article were solely those of the writer. It is understandable that there should be many viewpoints from which this important subject can be discussed and that there should be disagreement as well as agreement with the ideas that were developed in the aforementiond article. This is to be expected and all the more so because of the great variance in conditions under which gas companies operate throughout the country.

It is therefore suggested that the gas men who wish to say something on this subject avail themselves of the columns of The American Gas Journal that are herewith opened up for discussion. House heating with gas is acknowledgedly a matter of considerable significance to the American gas industry and the airing of views held by different gas men regarding house heating will be beneficial to all concerned.

The gas men are urged to give their attention to this matter. The American Gas Journal offers its facilities to any and every gas man who wishes to discuss this subject and the ideas that were presented in the aforementioned house heating article. The gas fraternity will be glad to listen to what you have to say on this matter. This is your opportunity!

A GAS COMPANY FAILS

That a business house should fail is not an unusual phenomenon, but that a gas company should have to go into voluntary bankruptcy is a matter that deserves the serious attention of all.

Business houses may indulge in speculation; they may over-expand and stretch their credit to the breaking point; they may under-rate the extent to which a market may fall or over-rate the amount of raw material they can consume. There are many ways in which failure can come about.

But a gas company is not subject to these different economic dangers. Whether to its ultimate advantage or not, its business is fixed. It knows just about the quantity of gas it will sell each year. There is no danger of over-production and no possibility of speculation. When it goes to the wall, it is solely because the franchise rate is too low to permit it to operate at a profit. When it does not receive what it should for the gas it sells and the service it renders, bankruptcy is the inevitable result.

It is mighty unfortunate that a gas company should fail, but in failing it teaches a very pertinent lesson to the community that it serves. There is no getting around the facts. The customers of a gas company must pay a reasonable price for the commodity they buy, whether it be gas or a suit of clothes. Law fixes the gas rate and when the legal price of gas is such that the gas company operates at a loss, bankruptcy is the result.

The law cannot force men and capital to stay in an unprofitable business. It can fix the gas rate, but it cannot make the gas company deliver gas at a profit when the gas rate is too low. The people must realize that even a gas company can voluntarily refuse to do business when conditions are such that money is lost in it.

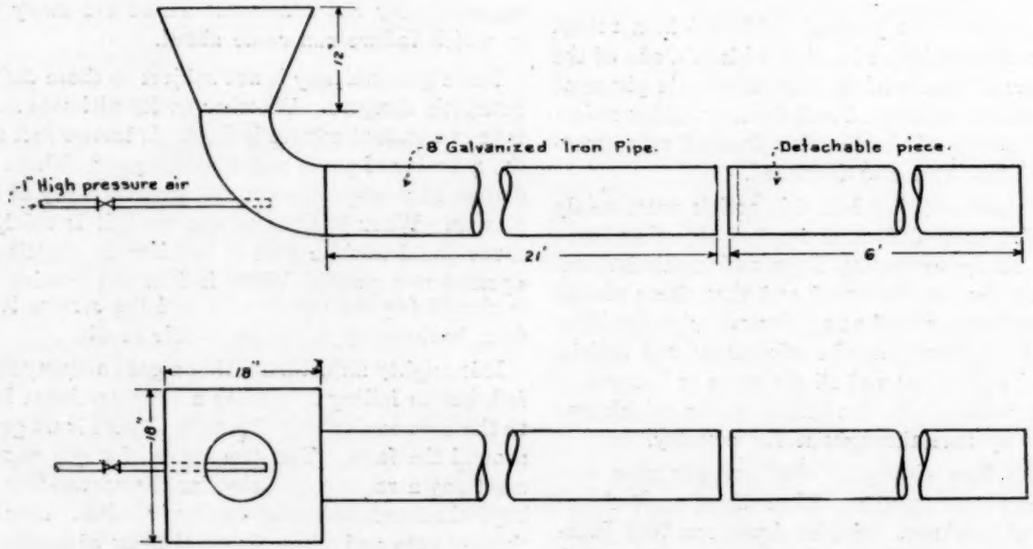
The community which this gas company served has been taught a lesson. It must now see that the gas company must be permitted to make a reasonable profit in order to give good service. The community itself is the chief sufferer when conditions are otherwise. It receives poor service; it cannot grow as it would like to. It is much like a fine auto car with a poor, inefficient engine. Its the engine that makes the car go and its the gas company along with the other public utilities that make for progress in a community.

In the long run, we all receive just what we pay for. What is obtained for nothing or close to nothing is of little value in itself.

GAS WRINKLES

Device for Putting Shavings in Purifiers

J. R. Moore, Los Angeles, Calif.



This device consists of an 8 in. galvanized pipe with an air line in one end. One end of the pipe is put inside of the purifier box and shavings are put into the hopper and blown into the box. With this device two men can fill a purifier 14 ft. high by 32 ft. in diameter in one day.

SPOUT FOR POURING PIPE COATING

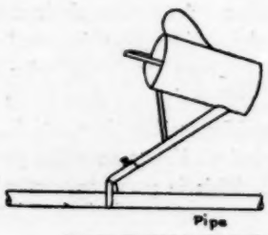
C. L. Burroughs, Ventura, California

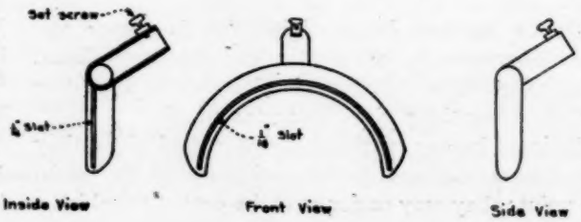
This spout, for applying an even coat of hot asphaltum or other protective coating to pipe, can be made up of wrought iron pipe by welder or can be cast in one piece. The neck should be of sufficient size to slip over the spout of a large watering can and should be provided with a set screw to prevent it from dropping off.

A separate spout will be required for each size of pipe.

The spout spreads the stream of hot material over the top and sides of the pipe. The surplus running down the sides of the pipe is spread on the bottom of the pipe by a strip of canvas in the usual manner.

The principal advantage of this type of spout is that it is easy to operate and cannot discharge a large quantity of hot liquid to one side or the other of the pipe and thereby reduces the chance of accidents to the man operating the canvas.





Catechism of Central Station Gas Engineering in the United States

Installment No. 4

(Continued from Last Week)

This bar is free to slide back and forth in guides in the scoop. So long as the scoop and scrapers are traveling together this mechanism travels as a whole with them. When the scoop moves back, while the scraper frame is held stationary, the end of the rope fastened to the scoop, and the pulley also fastened to the scoop, move away from the pulley fastened to the frame.

Working of Mechanism

To accommodate this motion, that portion of the rope passing around the pulley fixed to the frame must lengthen on each side of the pulley by an amount equal to the distance traveled by the scoop. This extra length can only be obtained by drawing on that part of the rope passing forward from the rear pulley on the scoop and fastened to the bar, which, since the bar is free to move, is practically a free end. The bar, therefore, is given a backward motion (in the same direction as the scoop) twice as fast as that of the scoop. This continues until the detaining pawl has been lifted, as described above. The continued movement of the scoop then immediately brings the end of the bar against a stop fastened on the main carriage, against which the rear end of the scoop also rests when it is at the extreme back end of its travel. The motion of the scoop still continues, but that of the bar being arrested, the end of the rope fastened to it is no longer a free end, and as the scoop moves back the rope is thus held at one end, while the other end, which is attached to the scoop, is drawn backward, as is also the loop passing around the pulley fastened to the scoop. The only part that is free to move to furnish the slack required to accommodate this double motion is the pulley fixed to the scraper frame, and this is accordingly drawn back, bringing with it the frame and scrapers at a rate of motion twice as fast as that of the scoop. The mechanism is so adjusted that when the scoop stops at the end of its travel the scrapers have reached their original position and everything is ready for another charge.

Both the scoop and the scraper frame are weighted at the rear end, the weight on the scoop serving to indicate when the proper weight of coal for the charge has been run into the scoop, and that on the frame acting as a counterweight to balance the portion which is left projecting into the retort as the scoop is withdrawn.

Either one, two or all three of the scoops can be locked either to the scoop carriage or to the main carriage. The scoops which are locked to the main carriage remain stationary when the others are run in the retorts, and in this case the rollers fixed to the scoop carriage, and on which the scoops rest, come into play to reduce the friction between the stationary scoops and the moving carriage.

The boiler and engine do not require any detailed description.

The coal hopper is divided into three equal compartments, each having a longitudinal opening the full length of the coal space of the scoop, and in such a position vertically as to allow the coal to be fed through it by a feeding device into the corresponding scoop. It is intended that it should be made large enough to hold all the coal required for the retorts to be charged at any one time.

Further Operating Details

The operation of the machine is as follows:

Two attendants are required; one to handle the traversing engine and the other to attend to the actual charging. When the machine is placed in front of the proper retorts the scoops are filled until the weight of the coal causes the front part to just balance the weight at the rear end, the forward rollers of the two under each scoop acting as fulcrums. The scoop carriage engine is then started forward and the motion of the carriage carries the scoops attached to it into the retorts. Just before this forward motion is automatically arrested, when the front ends of the scoops have reached nearly to the back ends of the retorts, the accelerated forward motion is imparted to the scrapers so that the coal is pushed into the seat of the retort. As the engine stops and the carriage is brought to rest the detaining pawls drop and hold the scraper frames. The engine, which has stopped automatically, is then reversed by the attendant and the scoops withdrawn from the retorts, leaving the coal, which is held in place by the scrapers. The front ends of the scoop being lightened by the removal of the coal, are raised by the lowering of the counterbalance weights at the rear end and carry with them the scraper frame, raising the scrapers nearly clear of the coal. The continued backward travel of the scoops raises the detaining pawls, brings the bar of the scraper-withdrawing mechanism against the stop and then withdraws the scrapers, the engine being stopped automatically when everything is in its original condition at the back end of the travel of the scoop carriage. The main carriage is then moved opposite the next tier of retorts and the operation repeated, the process being continued until all the retorts have been charged.

The West Charging Machine

West's charging machine is driven by compressed air. In it, as in other machines described, the charg-

ing apparatus proper and a coal hopper are carried by a frame which can be moved along a track laid on the charging floor of the retort house parallel to the front of the bench. The machine has only one charging scoop, so that only one retort can be charged at a time, and this scoop and the coal hopper are so hung in the frame that they can be readily adjusted to the level of the retort to be charged. This adjustment is performed by means of the same compressed air motor by which the machine is propelled back and forth in front of the benches.

Attached to the bottom of the coal hopper is an adjustable measuring chamber to measure out the proper charge of coal. This chamber is made in two parts which telescope into each other and are held, by adjusting bolts, in the position desired with relation to each other, which is determined by the size of the charge. Sliding doors are provided at the top and bottom of the measuring chamber, and the levers actuating these doors are connected together in such a manner that when the doors at the top of the chamber are open those at the bottom are shut, while the latter cannot be opened until those at the top are shut.

Working of Scoop

The charging scoop is carried on a frame composed of side bars, in which runs the carriage for the gear by which the scoop is turned over, and of rails on which the scoop carriage runs when it is drawn out of the retort into position for filling. A movable flap is provided to form a bridge over which the scoop carriage can run between the rails on the machine and the retort. The scoop carriage is propelled into and out of the retort by means of a piston driven back and forth in a cylinder by compressed air. To this piston is attached a rod and rack which engages a pinion attached to the shaft of a chain drum. Around this drum are wound two chains which go out in opposite directions, and after passing, one around a pulley at one end of the frame in which the scoop carriage travels, and the other over another pulley at the other end of the same frame, are both attached to a double chain pulley fastened to the main scoop rod. They are passed around this pulley in such a way that at the proper time the scoop rod can be rotated either in one direction or in the other.

The charger scoop, which is usually made of a length equal to half of that of the retort to be charged, consists of two scoops supported on a carriage which rests on three wheels, two at the back and one just forward of the middle of the center line between the scoops. The scoops are supported on the carriage by means of a longitudinal center bar and end plates, the latter supporting the scoop shafts. At the end of the charger which first enters the retort each shaft is carried by a chain, one end of which is attached to the shaft at the point of the circumference which is lowest when the scoop is in position to be filled with coal, the other end being fastened to the fixed end plate. A loose plate carried on the ends of the shafts and free to move inside of the fixed plate closes this end of the scoops so that the coal cannot fall out. At the other end the scoop shafts are carried by a fixed plate and are provided with gear wheels engaging with gears attached to and driven by the rotation of the main shaft.

Each scoop consists of two parts which are capable of sliding concentrically over one another for a determined distance. One of these parts is rigidly connected to the scoop shaft so that it must rotate with this shaft, the other hangs loosely on the shaft and can be rotated around it. When the mainshaft is rotated the bears cause the scoop shafts to rotate also. Each of these shafts carries with it the portion of the scoop fastened to it. This slides inside of the loosely-hanging portion until its inner edge strikes against stops fastened to the latter. As the shaft continues to turn, the loosely-hanging portion is carried along by the other part until the shaft has completed a half revolution and the folded-together parts of the scoop are completely inverted. During this half revolution the chain from which the loose end of the scoop shaft is suspended has been wound round this shaft and the shaft has been raised so that, when the rotation stops, the inverted scoop is higher than it would have been had it turned about a fixed center and it can consequently be drawn out without coming into contact with the coal deposited in the retort. The action described takes place simultaneously with both scoops, each turning in towards the middle of the retort so that the coal is dropped against the sides and into the corners.

General Operation of Machine

The operation of the machine is as follows:

The coal hopper having been filled from an overhead coal bin placed in a convenient position in the retort house the machine is moved along the floor until it is opposite the retorts which are to be charged first. The height of the charger is then adjusted to that of the retort, the movable flap put into the mouthpiece and the measuring chamber filled with coal, which is then run into the scoop. The attendant, by means of a lever which controls the valves, admits to the proper end of the cylinder which drives the charger, compressed air obtained through a hose and hose drum, so arranged that the hose unwinds from the drum as the machine moves away from, and is again wound up as the machine approaches the drum. The piston being set in motion by the pressure of the air, carries with it the rack which rotates the drum, winding up one chain and unwinding the other in such a way that the charger is propelled into the retort. Stops are arranged on the charger carriage frame so that the motion of the carriage will be stopped at the proper points. The piston continues to move after the motion of the charger is arrested and the pull on the chain rotates the main shaft, which causes the scoops to be rotated in their turn in the manner described above and the coal is deposited on the bottom of the retort. The double chain pulley by which the main shaft is rotated, being prevented from turning by pawls, which are released when the pulley carriage comes against the stops by which the motion of the charger is arrested, this

turning cannot take place until the scoop has reached the proper point in the retort.

The coal having been deposited in the retort, compressed air is admitted to the other end of the cylinder and the piston driven in the reverse direction The chain pulley is held so that it cannot turn, and the first effect of the reversal is to withdraw the charger with the scoops inverted and clear of the coal as it lies in the retort. When the charger is back in place outside the retort, the pulley is released, and the scoops are rotated back into their original position and left ready to be again filled with coal.

The operation is then repeated, bringing into play an intermediate stop which arrests the travel of the charger at the proper point to deposit the second portion of the charge in the proper position in the front of the retort.

The machine is then moved along to the next retort to be charged and the series of operations repeated until the whole number of retorts to be handled at one time have been charged.

The West machine has been developed in England and it is only within the last few years that examples of it have been used in the United States. In these examples electricity is used as the motive power, instead of compressed air, and the scoop is made the full length of the retort, or portion of the retort, which it serves, so that the charge is completed with one trip of the scoop. A detailed description of the English type, fully illustrated, will be found at page 335 of Vol. LXXVII of the Journal of Gas Lighting, etc. (London).

The De Brouwer Charging Machine

The De Brouwer machine is driven by electricity. It differs from the machines already described in that no part of the machine itself enters the retort, the coal being projected into the retort by the velocity imparted to it by means of an endless belt. The machine is a very simple one. A frame, which can be either mounted on wheels running on rails set in the floor or suspended from wheels running on overhead-rails, carries a small coal hopper, a system of pulleys over which runs an endless belt and an electric motor by which motion is imparted to the driving pulley of the series. The belt is carried one-quarter around a large grooved wheel, the belt being about 13 in. wide and the groove in the wheel 6½ in. wide and 4 in. deep. The belt, when it leaves this wheel, is traveling in a horizontal direction and continues so for a foot, when it turns downward over one of the small pulleys. It is then led back horizontally to a pulley which keeps it clear of the upper part and from there is led vertically up to and over the pulley which again brings it in contact with the large grooved wheel. The belt having been set in rapid motion by the motor-driven pulley, the coal is dropped from the hopper into the space enclosed between the belt and the grooved wheel, and is carried by the belt around the wheel and projected horizontally into the retort. The speed at which the belt travels is regulated to suit the distance to which the coal has to be thrown in order to reach the back of the retort, the longer the retort the higher being the speed employed. The coal, when it leaves the belt, possesses sufficient velocity to carry it to the back of the retort, and the first pieces of coal being stopped there the rest gradually fills the retort with an even layer from back to front.

More detailed descriptions of this machine will be found in the Journal of Gas Lighting, etc. (London), Vol. LXXXII, pages 367 and 523.

Coke Discharging Machines

26. Describe one or more forms of steam, hydraulic, compressed air or electric machines for removing coke from retorts.

Ans. The Bronder machine is one worked by steam. It is composed of a carriage, or platform, and of the machinery required for doing the work of drawing the retorts, all of which is mounted on the platfom. This is itself carried on wheels running in a track laid on the charging floor of the retort house in front of, and parallel to, the face of the retort stack. The same track serves for both charging and drawing machines, when both are used. On the platform are a steam boiler, an engine for moving the machine along the track, and the rake carrier and rakes for drawing the coke from the retorts, together with the mechanism for working the rake carrier. In some installations the boiler is omitted, the steam required for working the machine being obtained from the steam system of the gas works, through a flexible joint which permits of the travel of the machine from end to end of the retort stack.

The engine and mechanism for moving the machine, and stopping it at the proper points in front of the retorts, are similar to those used for the same purpose on the charging machine.

The rake carrier and the rakes, of which there are usually three arranged vertically one above the other, are carried on a framework consisting of two uprights, one at the back and one at the front of the platform, properly braced and tied together by horizontal members which form guides, on which run the rollers of the rake carrier. This carrier consists of two pieces of plate iron kept the proper distance apart by distance pieces. The four guide rollers are set between the plates, two bearing against the bottom of the upper guide and two running on top of the lower guide. The rake bars, or, as they might be called, the rake handles, pass between the two plates of the carrier and are attached to it by pins going through holes in both plates and in the rake bars which come opposite each other when the bars are in the proper position. If a rake is not needed, owing to the scurfing or repairing of a retort, it is disconnected from the carrier by pulling out the pin and is then fastened to the main cariage by a pin going through an extra hole in the bar and through a corresponding hole in a fixed plate fastened to this carriage. As the rakes are carried backward and forward by the motion of the carrier, the bars run on rollers fixed to a frame, this frame being so arranged that it can be raised and lowered by means of a hand lever worked by the machine attendant.

This permits of the rakes being lifted above the coke, as they are pushed into the retort, and dropped so as to engage with the coke and pull it out as they are withdrawn. To this frame a counterbalance is attached in such a manner that the position of the fulcrum, about which it works, is automatically varied to correspond with the extent to which the rake bars project beyond the frame so that the counterbalancing effect is always proportioned to the weight to be balanced.

Details of Operation of Machine

Motion is imparted to the rake carrier from a piston working in the horizontal steam cylinder of a direct-acting reciprocating motor, the admission of steam to, and its exist from, this cylinder being controlled by suitable valve gear. The rod attached to this piston carries a hollow cross head, in which there is a pin, and upon this pin there turns freely a gear wheel which engages on one side with a fixed rack secured to one of the cross head guides, and on the other side with a flying rack which runs in, or on, the other cross head guide. As the cross head is moved back and forth by the action of the steam on the piston, it carries the gear wheel with it, and, as the teeth of this wheel engage with those in the fixed rack, the wheel revolves at the same time that its center is being carried forward or backward and its circumference has therefore a lineal or longitudinal motion twice the length of that of the piston and cross head. This motion is imparted to the flying rack, every point of which thus moves twice as fast and as far as the piston. This rack carries two wheels or sheaves. A wire rope fastened at one end to the forward part of the main frame passes back to and around the front sheave, then forward to and around a sheave fastened to the front end of the main frame, and then back to be fastened to the rake carrier. Another rope starting from a fastening at the rear end of the main frame passes forward to and around the rear sheave on the flying rack, then backwards to and around a sheave fastened to the rear end or the main frame and thence forward to be in its turn fastened to the rake carrier. As the sheaves on the flying rack are moved, they give to the ropes passing around them lineal motion twice as great as that of their own centers, and this motion is transferred to the rake carrier. Since the sheaves move with the flying rack, which moves twice as fast and as far as the piston, it follows that the rake carrier, which moves twice as fast as the sheaves, moves four times as fast as the piston, and therefore the motion of the rakes over the full length of the retort is obtained with a comparatively small motion of the piston.

The longitudinal motion of the steam piston, and consequently of the rake carrier, is controlled by an hydraulic governor, consisting of a piston working in a water cylinder, the cylinder being arranged on the main frame in line with the steam cylinder and the piston being attached to a rod fastened to the cross head, this rod being practically a continuation of the steam piston rod. The cylinder is counterbored for a short distance at each end to a diameter slightly larger than that of the piston. In each of these counterbored portions there is a small port opening into a passage which brings the two ends of the cylinder into communication with each other. There are also two more ports at each end opening from the body of the cylinder into this passage. The cylinder being filled with water and the piston working in it water tight, the rate of motion of the piston cannot be any greater than the rate at which the water can be transferred from end to end of cylinder through the ports and the passage. As the piston approaches either end of the cylinder it covers first one and then the other of the ports opening out of the body of the cylinder and thus its speed is reduced gradually. The ports in the counterbores being always open, the governor does not bring the piston to a full stop, but its speed is so reduced that its motion can be controlled by the steam valve without incurring any risk of knocking out the end of the retort. An enlargement in the water passage, forming an air chamber, provides for the space occupied, on one side of the piston only, by the piston rod, the excess water forced out of the side on which there is no rod and for which there is no room on the other side of the piston, owing to the presence of the rod, being retained in this chamber.

In operating the machine it is brought to the right point by the traversing engine, and the retort lids having been slacked off, the rakes are run forward into the retorts, being kept raised during their forward motion. When about one-third of the way back into the retorts the rakes are stopped, dropped into the coke and withdrawn, bringing out ahead of them the coke from the fronts of the retorts. They are then raised, run back a little farther than before, dropped and withdrawn, the operation being repeated until the rakes have reached the back of the retort and all the coke has been drawn out. The rakes are then brought back to their original position on the machine and this is moved to the next set of retorts to be drawn, and the whole series of operations repeated.

The West Drawing Machine

West's drawing machine, like the charging machine, is worked by compressed air. As made for large works, it is mounted on a separate carriage from the charging machine, but for medium-sized works both machines are mounted on the same carriage so that both can be operated by the same man.

In its separate form the machine consists of an upright frame mounted upon four wheels, which run on rails laid in the retort house floor, these rails being used in common by both the drawing and charging machines. This main frame is moved along the rails either by a hand wheel and gears or by a compressed air motor and gears.

Suspended from it in a position perpendicular to the face of the stack of retorts is a horizontal frame, made of channel irons, in which works the drawing rake bar. The chains supporting the frame are fastened, not to the frame itself, but to what may be called a cross head working in guides on the upright frame, and pass over pulley wheels at the top of the upright frame and then run down to a hand winch, by which the rake frame and rake can be raised and lowered to the heights of the various tiers of retorts.

(Fifth Installment Next Week)

GAS MERCHANDISING

Domestic – Industrial

New Residents Good Prospects for Gas Appliances

Welcoming the newcomer and demonstration of goods leads way to more sales—People who move have problems the gas company can solve

Frank V. Faulhaber

"THE reason more gas appliances are not sold," said the merchandising manager of one large gas company, "is because proper sales efforts are often lacking. There is a big market for all kinds of appliances—and there always will be—but it is necessary that we interest our prospects thoroughly."

Here we have a reeipc for more sales. There are, of course, various ways of interesting pospects in gas appliances. That not enough of this work is being done cannot lightly be gainsaid, and there is a big opportunity in every city to win over customers to gas and gas appliances, and, moreover, to encourage them to become enthusiasts. Find those prospects! Explain all there is to know about gas appliances, educating them in every way and convincing them so that they will remain sold and so that they will relate their good experiences to relatives and friends.

People Buy New Goods When They Move

There comes to mind a certain class of prospects that the gas company should particularly interest. The possibilities of making sales to them are highly promising. Every year families will move, and these —bear in mind—have a problem warranting the gas company's consideration which should be particularly interesting. Because of their moving many new things must be bought—including gas appliances—entailing time seeking the proper goods. From whom are the gas appliances purchased? Furthermore, do these families always buy gas appliances? Then, again, what has been the experience of these families with gas appliances? If they haven't bought any, why not? And, if they have provided themselves with but a few articles that nearly everybody uses, why do they not use more? Cannot the gas company take a timely step here and show the way? Is there not a good opportunity here that should not be overlooked?

The one solution to this problem is for the gas company to get in close touch with these prospects. Every time a family moves there is a big opportunity. We can easily enough trace our way to these prospects. And then every possible effort should be exerted to interest them and to keep them interested.

Present Users of Gas Also Good Prospects

Present users of gas, when their changes of addresses indicate removal, can be included in this particular sales effort. Through the newspapers it is possible to obtain a goodly number of prospects, whenever changes of residences are listed. The moving van men have the desired information at their finger tips. Information can also be obtained from post offices. Prize contests can be arranged to secure the names and addresses of newcomers to town. Then lists can be exchnaged with merchants, resulting in mutual benefit. The gas company should certainly not be in want of prospects. Even newlyweds might be included in the campaign, as their problem is one in which the gas company can be of much service.

Method of Developing the Campaign

Now we have the prospects. How are we going to develop our proposition? It would not at all be amiss to send a representative to each one of these particular prospects. Your man may reach the new home just at a time when his visit might be considered a godsend. How many times does the new family take up residence and have to put up with unfamiliar and disconcerting conditions for several days, if not for several weeks? While residing at the previous place everything was so convenient; the family was used to things. Now there is a turn-

about. The family may have had many changes in mind, but still there is indecision. Here is where the gas company can be of signal service!

Use of Personal Letters

Aside from the matter of personal visits, there comes the personal letter in mind. Your newcomer often feels terribly out of place; somehow the surroundings do not yet appeal; it is the newness of things, however satisfactory these else might be, that accounts for it. Let us, thus, get in touch with these prospects, assuring them that they have at least one friend who is ready to serve them.

Write these people a letter, welcoming them to the new neighborhood, and expressing the wish for closer friendship.

Consider the following:

Dear Mr. and Mrs. Blank:

We are indeed glad to know that you have taken up your new residence and wish to extend our heartiest welcome. We are sure you will be pleased with the new surroundings and find your new neighbors all that you expect them to be. We hope you will be so pleased with everything that you will not want to move for many years.

We, of course, like to get acquainted with every newcomer, so that all will know each other better. For that reason we are inviting you to call at our office as soon as you find it convenient. We will be glad of the opportunity to show you about our place and tell you something of the service that we have been rendering to many people.

We are now looking forward to a visit from you and hope we shall not be disappointed. Thank you!

Such a Letter Gets Under the Skin

In the foregoing we have a letter that gets close to the prospect. It is, first of all, not a dry-as-dust appeal that often is only something to throw into the waste-basket. Instead, we have a specific message, one that is sure to be read, and read eagerly, the kind that secures all possible attention and the kind that is effective in the interest of more sales.

Your newcomers will be gratified to receive such a letter. At a time when they may seem very much alone the message should find a real welcome. The strangers will realize upon its receipt that they have not been neglected; they will feel flattered, instead,

The Second Follow-Up Letter

But what about those people who do not respond? Where the newcomers call at the gas company's office, their acquaintance can be made, their problems discussed, and the gas company's service explained. The reception that the prospect receives must be in harmony with the spirit of the letter. On the other hand, when no word is received after a reasonable length of time, another message should be mailed. All these letters should be individually typewritten to contribute an added personal touch Much of this work can be done during spare time by an assistant who might otherwise be idle, one who has an interest in the responsibility and who will keep close tab of results.

The second letter is as follows:

Dear Mr. and Mrs. Blank:

We have been wondering why we have not yet heard from you. We have anticipated a visit from you and the opportunity of explaining to you how we can be of service to you. But it is not entirely surprising to us, because we well realize that it takes time to become accustomed to new surroundings and to get settled.

We have solved gas problems for others and we can solve them for you. We will be glad to demonstrate all our gas appliances so that now you may secure the ones most suitable to your purpose. We have done this for others and we are ready to do the same for you. We are still awaiting you and will welcome you when you come.

The preceding letter is another compelling appeal. When the newcomers do come then, of course, there is the chance of demonstrating the various appliances, educating the prospect to their usefulness.

A Third Follow-Up Letter

But still certain newcomers fail to respond. Therefore another, the following letter, will prove in time:

Dear Mr. and Mrs. Blank:

Although you have not yet called upon us, we still have hope that you will visit us shortly. There may be any number of reasons why you have not come, but when you do come we will be more pleased to see you. We like to get acquainted with the new people, so that we will be able to render you our best services.

Can we expect a visit from you soon? We are enclosing a card which we would like to have you fill out. Let us know whether we should send a representative, either by the card, a letter, a 'phone call, or come personally. We will always welcome you! Thank you!

Collecting Data by Enclosed Card

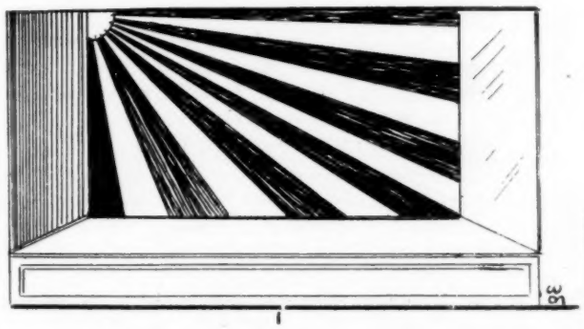
As this last appeal suggests, a card is enclosed containing a number of questions that should furnish the gas company with much valuable data. If the prospect wants a representative to call, the opportunity presents itself for becoming acquainted with the prospect. Sample queries may be: "Have you any lighting troubles that you would like to have us solve?" "Would you not want some information about our gas ranges and heaters?" "Would you not want to be told about our large assortment of gas burners, shades, mantles and other lighting fixtures?" "Would you like to have us demonstrate our gas irons?" and "Would you tell us of your friends who might be interested in our gas appliances and services?"

What Is Back of It?

Background in your window display

William H. Matlack

HAVE you ever gazed away toward the horizon and exclaimed, "Isn't it wonderful over there in the West this evening?"—or it may have been in the East in the morning. No doubt, we all have—but why—what was it? Are not the same roofs, tree tops and hills silhouetted against the sky this evening? Then just why is it not just as wonderfully beautiful each and every evening.

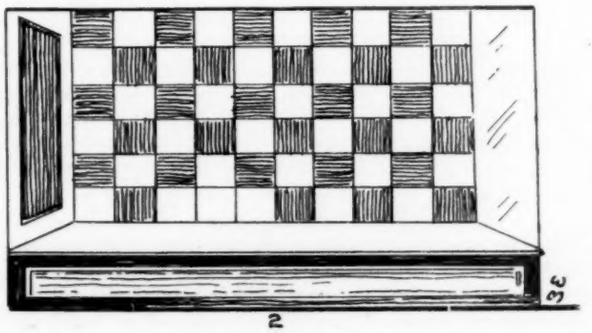


1

Let me tell you why. Last evening the setting sun formed a radiant background against a clear sky, or, if it occurred in the morning, the rising sun, breaking through pilot clouds, formed a colorful background.

Importance of Background

Background—That is the element which finishes the picture. The background impresses it on the mind and creates desire. Background is the element which must be studied to complete any setting. A room may be beautifully furnished, but if it has not the background of the proper floor coverings and wall finishes, the whole effect will be lost, because walls and floors are the background upon which you build your room. So it is with windows. Display windows are pictures to passers-by. Their background should be studied, because if you do not have the proper background the display of merchandise will surely lose its value. Just as the housetops, trees and hills are made to stand out against the wonderful background God has provided, namely the sky and clouds, so you must create a proper background against which to place the merchandise you are displaying.



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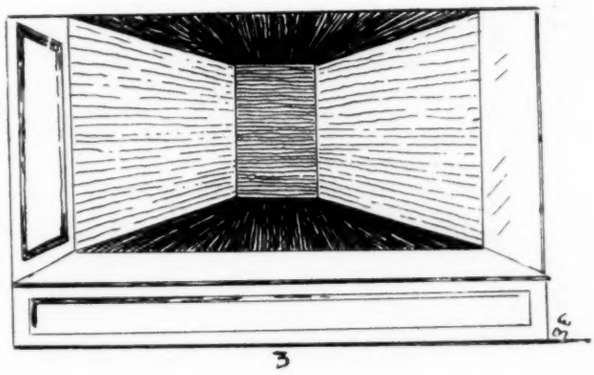


3

Background Easy to Acquire

There are numerous ways in which to construct effective backgrounds for your windows which are quite inexpensive, although very effective. In illustration No. 1 the background is formed by festooning two different colors of sateen from the upper left-hand corner of the window back. No. 2 is a checkerboard effect, achieved by intertwining two different colors, while No. 3 is a frame effect in two colors. The three effects pictured here may all be made from the same material, without cutting, and the maximum length is determined by the maximum height or width of your window. When you work out a window display be sure to satisfy yourself that you can see what is back of it.

THE ECONOMY OF THE BACK RUN DEVICE

(Continued from page 68)

were taken with Hoskins Indicating Pyrometers. Temperatures were read just prior to oil admission on each run.

In all tests temperatures of gas in the gas offtake into seal were taken by a Brown Indicating Pyrometer with the bare thermocouple inserted into a point about midway along the gas offtake. Temperatures were read at the end of the up-run and at the end of the back-run.

Breeze from Dust Trap

This was weighed at each cleaning period and a sample sent to the laboratory for moisture and combustible determination.

Sizing Generator Fuel

A sample (1500 to 2500 pounds) was drawn from the weigh-larry every eight hours. It was forked on a 1¼ in. standard fork and the oversize weighed. The remainder was screened on a one-half inch square mesh wire screen and both the oversize and undersize weighed. The percentages of each size were then calculated.

The best practice elsewhere seems to indicate that these machines should produce 3,500,000 cubic feet of gas per twenty-four hours, under the following conditions:

Coke

H_2O 5.0%
Ash 8.0%

Fuel to be of uniform size and all over one inch square mesh wire screen made of 3/16 inch wires.

Air

Twenty-one thousand cubic feet per minute at 42 in static pressure at the machine.

Our coke did not meet these specifications, neither did we have quite the requisite amount of air available.

In all cases sufficient time was allowed prior to each test to establish what was thought to be a satisfactory cycle and to bring the machine to a normal operating condition. We used in each test as much air as we could continuously put through the machine from cleaning period to cleaning period and used only so much blasting time as was necessary to maintain a proper fuel bed condition and proper superheater temperatures. Nevertheless in the light of our subsequent experience, we would in sevrral cases still further modify the cycle and would expect to obtain better makes and better oil and fuel results.

Our oil results were not as good with the Backrun as without it.

Operating Results

In order to maintain 600 B. T. U. on our tests with the Backrun, when all the oil had to be admitted in about one minute and forty seconds, we had to enlarge the openings of our oil spray nozzles to a point where we materially reduced the effectiveness of the spray. We noted that we were not securing effective oil atomization and to check up on this we made a subsequent test, primarily to secure maximum oil efficiency.

This test showed us that we could obtain at least as good oil results with the Backrun as without the Backrun, by maintaining a somewhat higher temperature, at the bottom of the superheater, and by using a properly designed oil spray.

Significant Data

A few significant figures on this test shown in comparison with similar figures from the test on screened oven coke without the Backrun, are as follows:

	Without Backrun	With Backrun
Gas per 24 hrs. (cu. ft.)	3,701,000	3,748,000
Oil per thousand (cu. ft.)	3.42	3.42
B.t.u. per (cu. ft.)	587	603
B.t.u. per gallon	77.5	82.1

In this case the make of gas was purposely limited so as to insure a figure on oil efficiency which would be comparable with the test on screened oven coke without the Backrun device, when the make, as shown by the table, was approximately the same.

It is probable that if we had been making 540 or 520 B.t.u. gas the problem of oil admission would have been simplified and the benefits accruing from the Backrun would have been greater.

Condition of Checker Brick

The carburetter checker brick were examined before and after the test with the Backrun device. The brick had a considerable, closely adherent deposit of ash on them. There was, however, no carbon deposit on the brick, and the flues were clear and open. The test was not continued long enough to determine whether or not the vendors of the device were justified in claiming that it would at all times preserve the checker brick free from carbon.

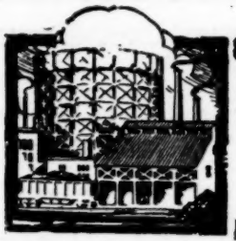
Results Were Checked

Naturally, we were at first inclined to question very seriously the accuracy of a test which showed such large savings in generator fuel per thousand cubic feet of gas made by the use of the Backrun. We accordingly checked up as carefully as possible the weights of fuel, clinker and ash, and recovered coke, and the measurements of air, steam, gas, etc. Having satisfied ourselves that no serious error existed in these figures, we made a calculation showing some theoretical savings obtained by the use of the Backrun, based on some assumptions, and on data obtained during the test.

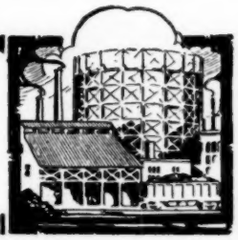
It may be pointed out that this test was not run primarily to make possible a complete heat balance and much data which would be necessary for this purpose was not obtained. The most considerable assumption we had to make was in connection with the total air going to the set.

Carburetter Air

No provision was made during the test for the measurement of carburetter air. We consequently assumed that the carburetter air per thousand cubic feet of finished gas was constant and used the figue of 710 cubic feet per thousand cubic feet of finished gas, given by Mr. O. B. Evans in his paper, "The Heat Balance of a Carburetted Water Gas Set," page 736, Volume 7, Proceedings of the American Gas Institute.



NEWS OF THE GAS INDUSTRY



N. J. GAS ASSOCIATION HOLDS MID-YEAR MEETING

Large Attendance Listens to Interesting Papers

The mid-year meeting of the New Jersey Gas Association was held on Wednesday, January 23, 1924, in the Public Service building, Jersey City, N. J.

The meeting was called to order by James P. Hanlon, the president of the association.

P. S. Young Welcomes Gas Men

The first speaker on the program was P. S. Young, vice-president of the Public Service Gas Company, who welcomed the gas men in the name of the Public Service Gas Company, the host of the occasion. He commended the men on their larger attendance at the meeting and said that it was indeed a good sign of the interest of the gas men in their association that so many of them arranged to come to this meeting, held in the midst of the busy season.

In his address he compared the economic conditions in the gas industry at the present time and before the war. The conditions are now very propitious for the further growth of the gas industry and there is more than clear sailing ahead. He also brought out the importance of the increased purchasing power of population and the effect it will be bound to have on the sale of gas and gas appliances.

Utility Securities Now of Highest Standing

The present high standing of public utility securities was also mentioned by Mr. Young as constituting an important aid in the attainment of new capital to finance new undertakings in the gas industry. It is noteworthy that the standing of public utility bonds is now second only to Government, State and municipal bonds.

Large Increase in Membership

The membership committee of the New Jersey State Association announced in its report an increase in membership of 452, from 174 to 628 members, at the present time. At this meeting 139 new members were elected. This large increase in the membership of the association is very gratifying and makes it one of the largest in the country.

The A. G. A. Monthly Sales Service Plan

Mr. Louis Stotz of the American Gas Association addressed the meeting on the newly projected plan of the American Gas Association to issue monthly sales service bulletins.

Mr. Eytinge, the expert who is associated with the American Gas Association, was also called upon to say a few words regarding the monthly sales bulletin plan of the American Gas Association to increase sales of gas and gas appliances. The importance of this plan was emphasized and it was brought out that it can well serve to do away with the bug-a-bear of the gas industry, the unprofitable customer.

Importance of Home Service

The next speaker on the program was Miss Ada Bessie Swann, chairman of the home service committee, who delivered a very interesting and instructive paper on the bettering of the service given by the gas company through the Home Service Department. The workings of the home service idea were discussed and it was emphasized that in giving home service the gas company reaches the woman, and through her the man, in a most vital spot. The home is the cornerstone of human society and anything that is done to make it a better place to live in means much to both the man and woman. By performing such service the gas company is actually entering the home of the customer, as a friend and real helper. That such service showed result in good will toward the gas company is evident to everyone. It was mentioned that the Home Service Committee of the A. G. A. is ready to furnish the necessary information and assistance to any gas company that is desirous of instituting such a department in its organization. Miss Swann emphasized the fact that while the expense incurred in maintaining a home service department may be comparatively large, it is without doubt that the work of this department leads to increased sales of both gas and gas appliances through engendering good will and friendly feeling towards the gas company.

Mr. Stotz, who had a few remarks to make in discussion of the previous speaker's paper, said that he could tell the assembled gas men that at least in one company, the Peoples Gas Light & Coke Co., of Chicago, an additional revenue of $1,000,000 annually was attributed to the work done by the Home Service Department of that company.

Many Opportunities in Industrial Gas for the Small Gas Company

The next speaker, J. P. Leinroth, general industrial fuel representative, Public Service Gas Company, discussed in his paper the importance of the industrial load to the small gas company. The speaker outlined the importance of industrial gas, the great possibilities that it offers the gas company, and laid special emphasis on his contention that the small gas company, as well as the larger one, can benefit greatly through industrial business. The small gas company was

urged to become more active in this field. The opportunities are present, for almost every town of any size at all has its bakeries, restaurants and confectioners, if not factories, making machine parts and other products requiring heat treatment or the application of heat in their manufacture, all of which are potential customers for the gas company.

The magnitude of the industrial business as compared with domestic business was brought out by the speaker in comparing the average monthly consumption of an industrial appliance as compared with the consumption of gas by an average domestic customer. Thus a cabinet bake oven of common size will consume a quantity of gas equivalent to what would be consumed by seven domestic customers at 2,000 cubic feet per month. Similarly, a candy furnace would use up as much gas as five domestic customers, each consuming 2,000 cubic feet a month.

It was suggested in closing that if the small gas company would go to the trouble of making an industrial survey of its territory to determine possible industrial customers, and go after these customers and sell them gas as a fuel for their manufacturing operations, it would be amply and agreeably surprised by the results that would be forth coming.

The Public Service Gas Company Entertains at Lunch

The morning session was then adjourned and the gas men and their friends were all invited to be guests of the Public Service Gas Company at a buffet luncheon.

Afternoon Meeting

A number of important papers were delivered at the afternoon session. The first address was by Harry Boyd Brown, sales manager, Electric Merchandise Service Corporation, on Building Gas and Gas Appliance Sales with Advertising. This paper was then followed by one on the Importance of Safety Education by A. J. Van Brunt, director of safety education, Public Service Corporation, in the course of which a practical demonstration was given the prime pressure method of life saving.

Mr. H. H. Ferris, general superintendent of manufacture, Public Service Gas Company, on saving money in boiler rooms. Mr. Ferris developed a series of fundamentals that must be followed in boiler room and power plant practice in order to secure efficient and economical utilization of steam.

This paper was followed by one on Fixed Capital Accounting by Ormsby F. Potter and another on the Importance of Using Good Gas Tubing and How Such Tubing Is Made, by Charles D. Fries, vice-president, New York Gas Tubing Company.

Annual Statement of Columbia Gas & Electric Company

New York, Jan. 21—With earnings of $12,331,554.92 for the year, the Columbia Gas & Electric Co. in 1923 enjoyed the most successful twelve-month in its history, according to a preliminary report issued here today by the board of directors. This is an increase of $1,439,-471.37 over the net earnings of 1922. Gross earnings increased from $18,592,693.62 to $21,002,-999.76 for the year.

The monthly report of earnings for December, issued at the same time, shows gross for the month of $2,079,390.92, and net earnings of $1,380,826.76, of which $866,777.26 was carried to surplus account. The directors declared the regular quarterly dividend of 65 cents per share on the capital stock of no par value, payable February 15 to stock of record January 31.

The company announces that as a result of its campaign among its own employees, offering stock of the company, the total allotment of 36,500 shares set aside for this purpose has been purchased by employees. Approximately 65 per cent of all employees of the Columbia company are now shareholders, most of the 35 per cent remaining being casual labor. In the ranks of the permanent employees the percentage is over 90 per cent, and in most important departments every employee is now a stockholder.

$1 GAS HELD UNCONSTITUTIONAL

Special Master Graham in First Suit Rules Walker Law Is Confiscatory

The dollar gas rate, established by the New York State Legislature in the Walker Law and signed by Governor Smith last June, was held unconstitutional and confiscatory today by James G. Graham, acting as a special master in the suit brought in Federal Court by the Consolidated and subsidiary gas companies to prevent the enforcement of the law.

The present decision, which affects only the New York & Queens Gas Company, whose suit was the first one heard, must be approved by the court before it becomes effective. It is the first decision on the Walker Law, against which temporary injunctions were sought and obtained by the Consolidated within four days of the passage of the law.

While Special Master Graham denied the right of the Legislature to fix the dollar rate, however, he upheld the right of that body to abolish the special service charge and to establish a 650 British thermal unit standard.

If that part of the decision which fixes the higher heating value is upheld, a request for increased rates is certain to be made of the Public Service Commission.

Profits Under 8 Per Cent

Even under present standards the company's reports show it falling slightly below the 8 per cent profit allowed by law. The rate now varies between $1.15 and $1.45 in different sections of the city, most of which, however, has the lower rate.

New Equipment for Brockport

Brockport, N. Y.—Contract has been awarded to the Gas Machinery Company of Cleveland, Ohio, to install an additional bench of sixes at the plant of the Brockport Gas Light Company. The plant is to be entirely overhauled and all equipment is to be put in first class condition. New and larger mains are to be laid as soon as weather permits. P. K. Hampton of Washington, D. C., has been made manager, succeeding J. L. Snider.

Brockport to Enlarge and Remodel Plant

Brockport, N. Y.—Contract has been let to the Gas Machinery Co. of Cleveland, Ohio, to install an additional bench of 6's; the plant is to be entirely overhauled and all equipment to be put in first class condition. New and larger mains are to be laid as soon as the weather will permit. The company changed management the first of October, 1923, P. K. Hampton of Washington, D. C., succeeding J. L. Snider of Brockport.

Rewards Given Five Who Saved Ten from Gas

Five of the men who participated in the rescue of the gas company workers, overcome in a gas-filled hole at Gay and Baltimore streets, received praise and monetary reward recently from Herbert A. Wagner, president of the Gas & Electric Co.

Two United States marines, two firemen and a traffic policeman were rewarded for courageous work in the accident which resulted in the death of a negro laborer and the partial asphyxiation of ten other men.

Sergeant Bernard G. Scullen, of the Marine Corps, stationed at the local recruiting station, who led the rescue of the underground workers after they had failed to check the flow of gas from a tap in the gas main, was the recipient of a check of $100 and the warm praises of Mr. Wagner. Sergeant Veryl D. Johnson, who aided Scullen, received a check for $50.

In a letter to Colonel C. M. Perkins, officer in charge of the recruiting office of the Marine Corps, the gas company executive termed the work of Scullen and Johnson "a credit to the ever-ready Marine Corps."

In appreciation of their aid checks for $25 each were sent to Firemen Joseph E. Schoenberger and George B. Perina of Truck Company No. 2.

The fifth of the rescuers to receive a check was Traffic Officer Joseph F. Waechter, 106 South Fifth street, for whom $50 was forwarded to Police Commisisoner Charles D. Gaither. Waechter, in making a rescue, was himself overcome by the fumes and was removed to Mercy Hospital. He has been given leave of absence until his lungs regain their strength.

The two marines, with Corporal Edward Abrams, have been recommended to Major General John A. Lejeune by Colonel Perkins for an official commendation of their bravery. Patrolman Waechter likewise was mentioned to Commissioner Gaither by Captain Stephen G. Nelson of the traffic division.

Must Increase Rates

Canandaigua, N. Y.—Canandaigua city officials have been informed that an increase in gas rates is made necessary in order that the local plant may be put on a paying basis. Charles L. Cadle of Rochester, former State Superintendent of Public Works, now connected with the Rochester Gas & Electric Corporation, which furnisehs gas and electricity for Canandaigua city, has had a conference with the local Aldermen and Mayor William J. MacFarlane, in which he proposed an increase of the average rate per thousand feet here from $1.50 to $1.75. He presented figures, taken from reports of the gas company during the last year, showing that the cost of gas manufacture here per 1,000 cubic feet is now about $2.44. Minus the amounts realized from the sale of coke and other commodities, this cost is reduced to $1.75 per thousand cubic feet. The proposed new rate is much lower than that charged in most cities of the state.

Personal.

George W. Boteler, manager of the Wisconsin Gas & Electric Co.'s local office, has been advanced to the district managership of the Watertown division, Whitewater division and Burlington extension division of the Wisconsin Gas & Electric Co.

He will have charge of the operation of the appliance sales departments of all the Wisconsin Gas & Electric offices in Waukesha, Jefferson, Dodge and part of Walworth counties, but will remain as manager of the Waukesha office, which will continue as his headquarters.

Mr. Boteler has been manager of the Wisconsin Gas & Electric Co.'s local office since that company absorbed the old Waukesha Gas & Electric Co. Mr. Boteler came here in 1917 as manager of the now defunct organization and was quick to make friends among the business people of the city.

Milwaukee, Wis.—M. H. Frank, Fond du Lac, has been promoted to manager of the Eastern Wisconsin Electric Co.'s railway department, succeeding E. W. Arnold, Oshkosh. Mr. Frank will have headquarters at Fond du Lac.

Millville, N. J.—B. Frank Buck, publicity manager of the Cumberland County Gas Co., Millville Electric Light Co. and Millville Water Co., has been appointed secretary to the president of the New Jersey Senate. The many friends of Mr. Buck in the gas field extend to him their sincere congratulations on his appointment to this important post. Mr. Buck was formerly a member of the New Jersey Assembly and had the distinction of representing Cumberland county for seven consecutive terms, the longest period of any Representative in the State. He was recently appointed to the membership committee of the New Jersey State Gas Association.

C. O. Brown Bade New Business Manager at Arkansas City

Miami, Okla.—Carl O. Brown, manager of the new business department of the Consumers Gas Co. here, has been transferred to the same position with the Valley Gas Co. at Arkansas City, Kas., a change that is considered quite an advancement

Mr. Brown, who is still a young man, came to Miami in 1917 and took a position as bookkeeper in the office of the Consumers company. He has been with the company steadily ever since, with the exception of the time he served his country in the World War. He advanced steadily until he was made manager of the new business department several months ago, where he showed such ability that it was decided to place him in the position mentioned above.

The Valley Gas Co. is one of the many corporations subsidiary to the Empire companies, as is the Consumers Company.

Gas Company in Voluntary Bankruptcy

Detroit, Jan. 17—The Lenawee County Gas & Electric Co., serving gas to Adrian, today filed a petition in voluntary bankruptcy in Federal court here.

The action grew out of the inability of the gas company to obtain relief from a franchise rate, made several years before the war, which requires the company to charge only $1 per thousand cubic feet for gas. Ever since 1919 efforts have been constant to obtain relief. The citizens permitted the company to charge 25 cents additional for a time, but that agreement lapsed in April, 1923, and was not renewed after two referendums. The earnings of the company available for interest and depreciation shrank from $31,860 in 1920, the year the increase was allowed, to $13,724 last year, when it was removed. This caused the company to default its bond interest payable January 1, 1924. The bankruptcy followed.

Owing to the fact that the company furnished a service which is in general demand, the court will be asked to appoint a temporary receiver necessary to continue uninterrupted operation pending adjustment. Practically all of the securities of the company are owned by Detroit and Michigan investors.

H. G. Bonner, vice-president, in filing the petition, explained the situation which led to bankruptcy for a company that is economically managed and for whose product there is great necessity and increasing use:

"The bankruptcy action of the Lenawee County Gas & Electric Co. is a matter for public interest in the manner in which it shows how publicly regulated enterprises may be rendered incapable of performing the tasks for which they are created under conditions unduly restrictive. Here is a company which is economically operated and for whose product there is a constant and growing demand, yet which cannot develop, owing to conditions beyond its control. Several efforts to remedy this situation by the cumbersome machinery of public referendum requiring a favorable three-fifths majority proved useless.

"It is not felt that this was to be interpreted as a meaning that our citizens desired to stifle their gas service, for our recommendations have always received plurality support. With so many minds to be reached, with so many engineering and technical considerations, it is not surprising that the results have been negative.

"Realizing the need of scientific information in determining public service matters, this company sought the right to submit itself to state regulation, where all questions are determined by engineers and by commissioners representing the electors. We appreciate that it is almost more than human for people to vote direct increases in rates that affect their living costs. Therefore, where a situation arises that cannot be adjusted in that manner, and no other recourse is at hand, appeal must be made to the courts, where the decisions made consider all interests.

"The Lenawee County Gas & Electric Co. has tried to render good service. To do this necessitates a plant that can make all the gas needed every day in the city's homes, factories, stores and shops. A good distribution system, through which gas may be kept flowing at proper pressure, is essential. A public utility should keep well ahead of the city's growth, so that new homes built around the fringes of the town may have service promptly. Money is necessary to buy supplies and fuel to advantage and to meet debts. It must have a good record for earnings, so that it can attract additional capital needed for expansion. None of these has this company been able to do as it should, ever since operating costs rose beyond the point where the fixed rates as established in the ordinance became inadequate. Had this been other than a public utility business it would not have continued service on such a basis.

"There is no satisfaction to public utility men who take their task seriously in rendering service for which they must apologize. Most of them would rather render no service at all. They believe that they should be permitted to meet the standards which the public itself has set and that their efforts should be reasonably compensated.

"From 1914 to 1923 Adrian's assessed valuation increased 44 per cent, much of which went into new homes and business enterprises. Each year over this period the demands on the company increased. The year just begun, by all indications, will make new demands upon us, but it is impossible to state at this time what we can do to meet requirements. Each year the plant must produce more gas and new lines must be laid. We have reached the end of available resources.

"The bankruptcy action will, it is hoped, bring a readjustment of the company's affairs that will enable it to meet the needs of the community adequately."

Sale of Goshen Gas Works

Goshen, N. Y.—John Barnard of Catskill has purchased the gas works owned by the Goshen Illuminating Co., and conducted for a number of years by the late J. H. Findlay of Goshen.

Mr. Barnard has had considerable experience in the gas business.

Reduces Rate

The Winsted Gas Co., Winsted, Conn., has announced a cut in gas rates of 20 cents per thousand cubic feet. The new rates go into effect with the February consumption bills. At present the rate for gas is $2 per thousand cubic feet.

J. J. Dugan with Missouri Fire Brick Company

J. J. Dugan has severed his connections with the Parker Russell Company to accept a position as assistant sales manager for the Missouri Fire Brick Company.

Mr. Duggan is well known in the gas industry having traveled extensively throughout this country and Canada.

He will be in charge of sales for benches, retorts, water gas linings, etc.

The Missouri Fire Brick Co. is one of the oldest concerns in the country engaged in the design and construction of gas benches.

Subscription Plan for Doherty Employees

Henry L. Doherty & Co., managers of the properties of Cities Service Co., announced the inauguration of an employees' subscription plan which carries a liberal bonus provision and which is extended over a period of five years, making it easy for employees to subscribe for the securities of Cities Service Co. by paying a small portion of the total amount of their investment each month.

Under the plan, employees who have been with the company less than one year are entitled to subscribe to an amount of securities equal to 25 per cent of their yearly salaries. For those who have been employed for one year to three years, 50 per cent of the yearly salary may be invested, and for those who have been with the company three years or more, 100 per cent of yearly salary may be the subscription. Provision is made that, in the event of the death of the subscribing employee, the unpaid balance of the subscription amount shall be regarded as fully paid, and the amount of securities subscribed to by him will be delivered to his relatives or his estate without any further payment.

Cities Service Co. in December.

The gross earnings of Cities Service Co. for the twelve months ending with December 31, 1923, were $16,602,562, as compared with $14,658,971 in the corresponding period of the preceding year, according to the monthly statement of earnings issued by the company. In the same period, net earnings amounted to $16,093,616, as compared with $14,205,674, and net to common stock and reserves was $8,480,783, as compared with $6,929,602 in the preceding twelve months. This was the equivalent of $18.28 a share earned on the average amount of common stock outstanding. In the twelve months ending November 30, 1923, $18.25 a share was earned on the common stock. Preferred dividends were earned 2.70 times, as compared with 2.70 times in the 12 months ending November 30, 1923.

In December, gross earnings totalled $1,298,656, as compared with $1,287,671 in December, 1922. Net was $1,261,478, against $1,242,471, and net to common stock and reserves was $622,485, against $615,494 in December, 1922.

"Educating the Future Users of Gas"

In the City of Bridgeton, New Jersey, they have just completed a new high school at a cost of $375,000 for buildings alone on a plot of ground covering 14 acres, with an enrollment of 840 pupils.

In the course of study at the school they are using a book, "Elementary General Science," by Hodgdon, which devotes 30 pages to "Gas as a Fuel."

Each year the gas company has as their guests a class of 125 pupils, who visit the plant so that they may understand the manufacture, distribution and the use of gas.

The visit to the gas plant is an occasion which the boys and girls look forward to, as the management always provides a pound box of chocolates for each member of the class, as a souvenir of their visit.

After their visit they are required by their teachers to write compositions on gas manufacture.

To further help and so that they may understand the gas meter, the company has furnished the school with a meter enclosed in glass, with the head off, so they could better understand the workings of same.

The Bridgeton company has recently presented to the high school one of the D. McDonald & Co. Demonstrating Indexes, and the following letter of appreciation was received:

December 28, 1923.

Mr. Jacob B. Jones, Treas. & Supt.,
Bridgeton Gas Light Company,
Bridgeton, N. J.:

Mr. Dear Mr. Jones: A number of days ago I called at the gas office with a request for an old meter that I might use as a demonstration to my class in general science and agriculture at Bridgeton High School. My idea at that time was to secure only a temporary loan of the equipment mentioned. As you know, we are now in possession of a demonstration meter and an exceptionally beautiful and convenient desk dial for instruction purposes. I assure you that it has been very gratifying to me to receive such whole-hearted co-operation from you personally and your employees.

I have demonstrated both instruments to the other members of the science department of our faculty and have urged them to make use of the equipment in every way possible. I feel that the use of such equipment in our schools will eventually result in more intelligent use of gas and gas equipment and at the same time destroy a lot of the suspicion that seems to be more or less common in regard to the gas meter.

Thanking you and wishing you and the Bridgeton Gas Light Company a happy and prosperous New Year, I am,

Very truly yours,
LAUREN S. ARCHIBALD.

Evidently the management believes in educating their future consumers while they are young and that idea of investing in a hundred or more pounds of chocolates may be building a good will that will pay big returns in later years.

Standard Gas & Electric Co. Calls Special Stockholders' Meeting

A special meeting of stockholders of Standard Gas & Electric Co. has been called for January 21, 1924, at Wilmington, Delaware, for the purpose of voting on the proposal to increase the authorized common stock of the company from 600,000 shares, without par value, to 1,000,000 shares, without par value. The increase is principally for the purpose of enabling the company to provide stock sufficient to meet conversion terms of the new $10,500,000 convertible 6½ per cent gold debentures, due 1954, just sold, in case of exercise of conversion privileges by the holders of the convertible debentures.

Western States G. & E. Co. Purchase Gas Properties

The California Railroad Commission has authorized the purchase by the Western States Gas & Electric Co. of the plant, property and distributing system of the Central Natural Gas Co. for the service of gas in the city of Stockton, Cal.

Current Market Prices

COALS (By Courtesy of Coal Age)

A. Bituminous.

(Spot prices, F. O. B., mines, net tons).

High Volatile, Eastern	Market	Price
Pool 54-64		
(Gas Standard))	New York	$1.60 to $1.75
Pittsburgh screened gas	Pittsburgh	2.35 to 2.50
Pittsburgh gas, mine run	Pittsburgh	2.25 to 2.35
Kanawha lump	Columbus	2.50 to 2.75
Kanawha mine run	Columbus	1.50 to 1.75
West Virginia lump	Cincinnati	2.25 to 3.00
W. Virginia gas mine run	Cincinnati	1.35 to 2.00
Midwest		
Indiana 4th vein lump	Chicago	3.00 to 3.25
Indiana 4th vein mine run	Chicago	2.50 to 2.75
South and Southwest		
Big Seam lump	Birmingham	3.75 to 4.00
Big Seam mine run	Birmingham	1.75 to 2.15
Southeast Kentucky lump	Louisville	2.75 to 3.25
Southeast Kentucky mine run	Louisville	1.75 to 3.00

B. Anthracite.

(Spot prices F. O. B. mines, gross tons),

Market	Freight rates	Independent	Company
Egg New York	$2.34	$8.75 to $9.50	$8.75 to $9.25
Egg Philadelphia	2.39	9.50 to 10.50	8.75 to 9.25
Egg Chicago (net tons)	5.06	9.60 to 12.50	8.00 to 8.35

COKE (By Courtesy of Iron Trade Review).

Connellsville, furnace	$3.75 to $4.25
Wise County, furnace	5.00 to 5.75
Alabama, furnace	5.00 to 6.00
Foundry, Newark, N. J., del.	10.91
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.50
Foundry, St. Louis	12.50
Foundry, Granite City, Ill.	12.50
Foundry, Alabama	5.00 to 6.50

PEROLEUM (By Courtesy of Oil, Paint& Drug Reporter)

(Prices at wells, per bbl.)

Pennsylvania—Ohio—West Virginia.	
Cabell, West Virginia	$1.50
Corning, Ohio	1.55
Lima	1.83
Pennsylvania	3.25 to 3.65
Wooster, Ohio	1.70
Indiana—Illinois.	
Illinois	1.62
Indiana	1.63
Oklahoma—Kansas.	
Healdton	0.90
Mid-continent (low gravity)	0.50 to 0.90
Gulf Coast.	$1.25
Gulf Coast, Grade A	1.00
Gulf Coast, Grade B	0.65
Pierce Junction	4 to 4¼c

GAS OILS.

Gas Oil, Bayonne, bulk gal.	2¾ to 4¼c
Gas Oil (32-36) Illinois-Indiana, gal.	2¾ to 3 c
Gas Oil (32-36) Oklahoma, gal.	2½ to 2⅝c
Gas Oil (32-36) Gulf Coast, gal.	3½ to 4 c

PIPE AND FITTINGS—CAST IRON GAS PIPE.

(By Courtesy Iron Trade Review.)

Four-inch, Chicago	$64.20 to $65.20
Six-inch and over, Chicago	60.20 to 61.20
Four-inch, Birmingham	56.00 to 57.00
Six-inch and over, Birmingham	52.00 to 53.00
Four-inch, New York	70.60 to 71.60
Six-inch and over, New York	65.60 to 66.60
Standard fittings, Birmingham, base	115.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

BY-PRODUCTS

(By Courtesy of Oil, Paint and Drug Reporter)

Ammonia aqua, 16 deg. drums lb.	5 to 5½c
Ammonia aqua, 20 deg. drums lb	6¼ to 7 c
Ammonia aqua, 26 deg. drums lb.	7 to 7½c
Ammonia squa, anhydrous cylinder, lb.	30 to 36 c
Ammonium sulphate, bulk F. O. B. Works, per 100 lbs.	$2.80 to $2.90
Potash prussiate, yellow casks, lb.	22 to 22½c
Potash prussiate, red casks, lb.	45 to 48 c
Soda prussiate, yellow casks, lb.	13 to 13½c
Soda sulphocyanide, barrels, lb.	45 to 55 c

COAL TAR BASIC PRODUCTS.

(By Courtesy of Oil, Paint and Drug Reporter)

Benzol C. P. tanks, works, gal.	23 to 28c
Benzol, drums, gal.	28 to 33c
Benzol, 90% tanks, works, gal.	21 to 26c
Benzol, 90% drums, gal.	26 to 31c
Napthalene, flake, barrels, lb.	6¼ to 7c
Napthalene, crushed bags, lb.	5½ to 6c
Solvent Naphtha, water white works, gal.	27c
Solvent Naphtha, drums, works, gal.	32c
Solvent Naptha, Crude Tanks, works, gal.	24c
Solvent Naphtha, drums, works, gal.	29c
Toluene, C. P. tanks, works, gal.	26c
Toluene C. P. drums, works, gal.	31c

Authorized to Sell Bonds.

Greencastle, Ind.—The Public Service Commission, in an order just issued, has authorized the Greencastle Gas Co. to issue $45,000 in 6 per cent bonds, the money derived from the sale of these bonds to be used in improving the local gas plant.

Under the plans of the company a water gas set and a coal conveyor are to be installed, a large coal storage bin built and other improvements are to be made with the money derived from the sale of the bonds. A water gas set is an improved apparatus for the manufacture of gas.

In the order of the Public Service Commission authorizing the issuing of the bonds, there is incorporated the following data regarding the plant and its plan for improvements:

"The bonds are to be issued to take up short-term notes given to provide cash for additions to property amounting to $32,956.22; and to provide funds to help defray expense of additions to property, including a water gas set with equipment and necessary alterations to buildings to house same; the installation of a coal conveyor and greater coal storage; improvement to a bench of fives.

"The description and estimated value of the property to be acquired through said issue is:

"Water gas set, boiler and purifying equipment, $9,500; alteration to building to house water gas set, $2,000; coal conveyor and addition to coal storage, $4,500; improvement on bench of fives, $600.